

Scientists narrow global warming range

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(Phys.org) —Australian scientists have narrowed the predicted range of global warming through groundbreaking new research.

Scientists from the University of Melbourne and Victoria University have generated what they say are more reliable projections of global warming estimates at 2100.

The paper, led by Dr Roger Bodman from Victoria University with Professors David Karoly and Peter Rayner from the University of Melbourne and published in *Nature Climate Change* today, found that exceeding 6 degrees warming was now unlikely while exceeding 2 degrees is very likely for business-as-usual emissions.

This was achieved through a new method combining observations of carbon dioxide and global temperature variations with simple [climate model simulations](#) to project future global warming.

Dr Bodman said while continuing to narrow the range even further was possible, significant uncertainty in warming predictions would always remain due to the complexity of climate change drivers. "This study ultimately shows why waiting for certainty will fail as a strategy," he said. "Some uncertainty will always remain, meaning that we need to manage the risks of warming with the knowledge we have."

The study found 63% of uncertainty in projected warming was due to single sources – such as [climate sensitivity](#), followed by future behaviour of the [carbon cycle](#) and the cooling effect of [aerosols](#) – while 37% of uncertainty came from the combination of these sources.

"This means that if any single uncertainty is reduced – even the most important, climate sensitivity – significant uncertainty will remain," Dr Bodman said.

Professor Karoly said the study reinforced the importance of strong action on climate change.

"Our results reconfirm the need for urgent and substantial reductions in [greenhouse gas emissions](#) if the world is to avoid exceeding the global warming target of 2 degrees needed to minimise dangerous climate change," he said.

Dr Bodman is Postgraduate Research Fellow at Victoria University's Centre for Strategic Economic Studies. Professor Karoly and Professor Rayner are from the University of Melbourne's School of Earth Sciences and the ARC Centre of Excellence for Climate System Science.

More information: Uncertainty in temperature projections reduced using carbon cycle and climate observations, [DOI: 10.1038/nclimate1903](https://doi.org/10.1038/nclimate1903)

Provided by University of Melbourne

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